

avoids unacceptable stresses in the vessel's structure; and

(b) To guide the master as to the stability of the ship under varying conditions of service.

§ 45.107 Strength of hull.

The general structural strength of the hull must be sufficient for the draught corresponding to the freeboard assigned and must be approved by the Commandant. Ships built and maintained in conformity with the requirements of a classification society may be recognized by the Commandant as possessing adequate strength.

§ 45.109 Strength of superstructures and deckhouses.

Each superstructure or deckhouse used for accommodations of the crew must be approved by the Commandant or the approved assigning authority with regard to general strength and weathertightness. The Commandant may use the requirements of the assigning authority as a guide.

§ 45.111 Strength of bulkheads at ends of superstructures.

Bulkheads at ends of enclosed superstructures must have sufficient strength to withstand impact of boarding seas.

§ 45.113 Access openings in bulkheads at ends of enclosed superstructures.

(a) Access openings in bulkheads at ends of enclosed superstructures must have doors of steel or material as strong as steel that are permanently attached to the bulkhead and framed, stiffened, and fitted so that the bulkhead and door are as strong as the bulkhead and weather tight when closed.

(b) The means for securing the doors weathertight must be permanently attached to the doors or bulkheads and arranged so that the doors can be secured weathertight from both sides of the bulkhead.

(c) Access openings in bulkheads at ends of enclosed superstructures must have sills that are at least 12 inches above the deck.

§ 45.115 Bulwarks and guardrails.

(a) The exposed parts of freeboard and superstructures decks and deckhouses on the freeboard deck must have guardrails or bulwarks that are at least 36 inches high above the deck.

(b) Guardrails must have at least three courses with no more than a 9-inch opening below the lowest course and no more than 15 inches between other courses. If the sheer strake projection is at least 8 inches above the deck, a guardrail may have two courses with no more than 15 inches between courses.

(c) In way of trunks at least half the protection required by paragraph (a) of this section must be in the form of open rails.

§ 45.117 Freeing port area: General.

(a) Where bulwarks on the weather portins of freeboard or superstructure decks form wells, the bulwarks must have the area prescribed in this section and §§ 45.119 and 45.121 for rapidly freeing and draining the decks of water.

(b) Except as required in §§ 45.119 and 45.121 the minimum freeing port area in square feet on each side of the ship for each well on the freeboard deck and on the raised quarterdeck must be at least as great as A in the following formulas:

(1) Where the length of bulwark (l) in the well is 66 feet or less,

$$A = 7.6 + 0.115 (l)$$

(2) Where (l) exceeds 66 feet,

$$A = 0.23 (l)$$

but (l) need in no case be taken as greater than 0.7L.

(c) In ships having erections on deck that are open at either or both ends, provision for freeing the space within such erections must be approved by the Commandant or the assigning authority.

(d) The lower edges of the freeing ports must be as near the deck as practicable. Two-thirds of the freeing port area required must be provided in the half of the well nearest the lowest point of the sheer curve.

(e) All freeing port openings in the bulwarks must be protected by rails or bars spaced approximately 9 inches. If shutters are fitted to freeing ports,